NYISO Consumer Interest Liaison Weekly Summary

July 23 – July 27, 2018

Notices:

- *We are pleased to announce that NYISO's Training Team will be offering the, in-class, MT-101 **Market Overview Course** on Thursday, September 13, 2018. The **registration** deadline is close of business on Tuesday, September 4, 2018.*

- *The NYISO announced on July 26, 2018, the **selection of three pilot projects to demonstrate the capabilities of Distributed Energy Resources (DERs) and options for their integration into its wholesale markets**. These pilot projects support the NYISO's **DER Roadmap**, which establishes a clear path for integrating DERs and, in so doing, will help the state of New York achieve its goals for Reforming the Energy Vision (REV).*

- *As discussed at the August 25, 2018 Management Committee meeting, the NYISO Board will be conducting a **new search for the current NYISO Board member vacancies**. As part of that new search, the Board Selection Subcommittee (BSSC) will need to be convened, which is composed of two members from each of the NYISO Governance Committee Sectors. Please provide two representatives from your Sector to serve on the Board Selection Subcommittee to Leigh Bullock at **lbullock@nyiso.com** and Erin Hogan at **Erin.Hogan@dos.ny.gov** by August 1, 2018*

Meeting Summaries:

Tuesday, July 24, 2018

Joint Market Issues/Installed Capacity/Price Responsive Load Working Group

Securing 100+kV Transmission Facilities in the Market Model

Ethan Avallone of the NYISO provided an update on the project to secure 100+kV facilities in the market model. This presentation is in response to stakeholder requests, at the June 13, 2018 MIWG meeting, that the NYISO update the 100+kV timeline and facilities list previously posted to the February 21, 2018 MIWG meeting. The NYISO proposes to present a Market Design Complete presentation to the BIC in September.

The NYISO is currently targeting to begin securing four facilities identified for November 2018 in the energy market models by November 30, 2018.
Separately, the NYISO is working with market participants on a proposed tariff update that would permit the use of a non-zero constraint reliability margin (CRM) that is less than 20 MW, which was discussed at the June 13, 2018 and July 18, 2018 MIWG meetings. The ability to apply a CRM value less than 20 MW will facilitate the continued pricing of smaller 115 kV facility constraints.
The NYISO's Market Power Assessment of 115 kV facilities indicated that it is not necessary to pursue mitigation rules tied to the 100+kV project at this time.
On August 7, 2018, the NYISO will provide an update confirming the facilities that will be secured starting November 2018 in the Autumn TCC market auction and the NYISO energy market.
The Market Model: Market Design Complete will be presented at the September 12, 2018 BIC meeting. The four facilities identified for November 2018 in the energy market models will be targeted by November 30, 2018 with an additional target to begin securing eighteen facilities identified for December 2018 in the energy market models, pending the completion of the Niagara modeling enhancements.
To see the complete update by Mr. Avallone, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-24/100+kV%20July%2024%202018%20MIWG%20FINAL.pdf

Niagara Generation Modeling Update

David Edelson of the NYISO presented an update on the modeling enhancement of the Niagara Power Project in the Real-Time and Day-Ahead Markets planned for the end of 2018. Mr. Edelson led a review of the original modeling of the Niagara Power Project and the enhancement of the model completed in 2016. The current 2018 enhancement enables RTD/RTC/SCUC to more effectively address transmission constraints consistent with the available generation capabilities, and it will make the dispatch of the plant predictive of the actions taken, rather than reactive. Mr. Edelson explained the enhancements to the model and provided examples of the anticipated results providing constraint relief. Some stakeholders requested additional detail on the steps within the optimization process, which the NYISO will consider for a future working group presentation. The NYISO is targeting December 2018 to have the necessary work completed and ready for implementation. To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-24/Enhancements%20to%20the%20Niagara%20Model%20vJuly24_2018vFINAL.pdf

Energy Storage Market Design Update

Whitney Lesnicki of the NYISO provided updates to the Energy Storage Resources (ESR) energy market design. Ms. Lesnicki led a review of the energy market design concepts including the resource's option of NYISO-monitored energy level or Self-monitored energy level. The concept of ESRs requiring a transition period between injecting and withdrawing was introduced and described. Some ESRs, such as lithium-ion batteries are able to transition directly from withdrawing to injecting with no down time required. Other ESRs, such as pumped storage, require a minimum withdrawal or minimum injection level to operate and cannot be scheduled to operate in a region between certain withdrawal and injection levels. This requirement allows a resource to have three states of operation available; withdrawal, injection or off. The three state-of-operation requirement, along with other parameters required for efficient ESR operation, adds complexity to the model solution.
The NYISO is currently working closely with ABB to develop a prototype for the ESR market design with a focus on:

- Modeling non-continuous ESRs that have infeasible operating regions between Min Load and Min Gen
- Adding operating parameters, Ancillary Services and increasing ESR participation gradually to evaluate the effects on solution time

The results of this evaluation are expected from ABB by September 30, 2018 and will inform stakeholders on the initial participation model for ESRs in the wholesale markets. A timeline was provided illustrating the steps leading to a December 3, 2018 compliance filing deadline.
To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-24/ESR%20Market%20Design%20Update.pdf

ESR Settlements

Pallavi Jain of the NYISO provided updates on settlements for Energy Storage Resources (ESRs). Ms. Jain explained that the following settlement rules will be applied to ESRs and require no changes for ESR eligibility:

- Balancing Energy Payments
- Regulation Revenue Adjustment Charges/Payments

Day Ahead Margin Assurance Payment eligibility rules were reviewed with stakeholders. Ms. Jain then explained that ESR's participating as Self-monitored would be eligible to receive DAMAP when offering as Self-Committed Flexible or ISO-committed Flexible Generators that are either online and dispatched by RTD or available for commitment by RTC. The rationale for the proposal was provided as:

- *Consistent with current treatment of Generators.*
- *Because the NYISO's market optimization software will not consider State of Charge (SoC) for Self-monitored ESR's, existing eligibility criteria will require few changes.*
- *Existing incentives to offer flexibly in RT will remain unchanged.*
- *Calculation must be revised to calculate DAMAP during withdrawal periods.*

The NYISO proposes that ESR's participating as NYISO-monitored not be eligible to receive DAMAP.
Discussions on the complete participation model for ESRs will continue through Q3 2018 in preparation for a Q4 FERC Filing. To see the complete presentation on settlement updates, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-24/ESR%20Settlements_07_24_MIWG.pdf

Methodology for Consumer Impact Analysis: Energy Storage Integration

Tariq Niazi of the NYISO presented the methodology to be used for the Consumer Impact Analysis of the Energy Storage Integration participation model. The NYISO has committed to providing a presentation on the methodology to be used for each Consumer Impact Analysis to give stakeholders an opportunity to comment on the methodology.
Mr. Niazi began by providing a brief background on the development of the participation model for Energy Storage Resources (ESRs) and noted that the analysis for ESRs would be very similar for the impending Consumer Impact Analysis of the Distributed Energy Resource (DER) participation model. Mr. Niazi explained that since the NYISO does not know how much energy storage will be available for implementation, estimates over a range of expected values will be provided. To approximate the short run energy market impact of storage, upstate and downstate historical energy prices will be used.

Assumptions to be used for the analysis were provided to and discussed with stakeholders, with Mr. Niazi noting feedback for consideration.
In the evaluation of the impacts on the capacity market, again a range of expected values will be used. Storage resource values of 500MW, 1,000MW, 1,500MW and 2,500MW will be assumed to be entering the wholesale market. Details were provided concerning de-rate factors for ESRs, effects on Locational Capacity Requirements (LCRs), and zonal distribution of resources.
A short-term case (2017/2018) and a long-term case (2021/2022) will be evaluated for analysis.
To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-24/CIA%20-%20Methodology%20for%20Storage%20Integration.pdf

Valuing Capacity for Resources with Energy Limitations
Wes Hall of GE Energy Consulting (GE) provided an update on the study to develop a methodology for calculating the Capacity Value of resources with energy limitations. GE will develop a GE MARS post processing routine to schedule resources subject to the energy limiting parameters against the hourly NYCA capacity margin for each replication and load level of the GE MARS simulation. Each replication's hourly NYCA capacity margin will be adjusted by the schedule, and the reliability indices recalculated. Capacity will be removed until the relevant reliability index is returned to base case levels.
Mr. Hall detailed the assumptions to be used in the study and provided stakeholders with an opportunity to give feedback for refinement.
GE is working with the NYISO to validate preliminary base case results for presentation at a later stakeholder meeting. To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-24/Capacity%20Value%20of%20Resources%20with%20Energy%20Limitations.pdf

Wednesday, July 25, 2018
Management Committee
Motion #1:
Motion to approve the draft May 30 and June 12, 2018 Management Committee meeting minutes.
The motion passed unanimously by show of hands.

Motion #2:
The Management Committee ("MC") hereby: (i) approves revisions to the Open Access Transmission Tariff, as more fully described in the presentation entitled "Historic Congestion Data: Proposed Enhancements" made to the MC on July 25, 2018; and (ii) recommends that the NYISO Board of Directors authorize the NYISO staff to file such revisions under Section 205 of the Federal Power Act.
The motion passed unanimously by show of hands with abstentions.

Motion #3:
The Management Committee hereby determines that a new Cost of Service study should NOT be conducted during late 2018 and 2019 to inform a decision on whether a modification of the 72%/28% cost allocation between Withdrawal Billing Units and Injection Billing Units is warranted, pursuant to OATT Section 6.1.2.3
The motion passed unanimously by show of hands with an abstention.

Wednesday, July 25, 2018

Budget and Priority Working Group

Proposed FERC Fee Recovery

Cheryl Hussey of the NYISO addressed the proposed amount for the 2019 FERC fee recovery. Ms. Hussey led a review of FERC's budget requirements for recent years to illustrate the historical trend in increases. The proposed amount for Fiscal Year 2019 FERC fee recovery is $13.1M which represents an increase of approximately four percent from Fiscal Year 2018. To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/mc_bpwg/meeting_materials/2018-07-25/02%20FERC%20FEE%20%20Estimate.pdf

2018 Project Schedule Milestone Update

Robb Pike of the NYISO provided an update on the 2018 Project Schedule milestones. Mr. Pike highlighted several projects with an updated commitment status. Explanations were provided for stakeholders for projects with the status of At Risk/Delayed or Cancelled. Mr. Pike also noted, for stakeholder awareness, the projects which will be discussed in stakeholder forums in the near future:

- *Public Website Content Management Platform & Redesign*
- *Automate ICAP Import Rights*
- *Alternative Methods for LCRs (SOM)*
- *Performance Assurance*
- *Competitive Entry Exemption for Increased CRIS*
- *BSM Repowering*
- *DER Participation Model*
- *NYISO Pilot Framework*
- *Model 100+kV Transmission Constraints (SOM)*
- *Energy Storage Integration & Optimization*
- *Integrating Public Policy*
- *FERC Order 844*
- *Comprehensive System Planning Process Review*

To see Mr. Pike's complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/mc_bpwg/meeting_materials/2018-07-25/2018%20Project%20Schedule%20Milestone%20Update.pdf

2019 Project Prioritization and Budget Process

Brian Hurysz of the NYISO presented the initial project recommendations for the 2019 budget process. Mr. Hurysz led a review of the project scoring methodology and highlighted the scoring of the Carbon Pricing project. The proposal for Phase 1 of the Climate Change Impact and Resilience Study was discussed in depth with stakeholders. The scope of the study was clarified and the NYISO responded to stakeholders as to the progression of the study following Phase 1 in 2019.
Mr. Hurysz provided the project recommendations based on the appeal of stakeholder survey results prior to a review of project recommendation by product area. The total estimated cost of the recommended projects, less the EMS/BMS cost, is $32.52 Million and is subject to budget approval. Written feedback on the 2019 Project Budget Recommendation may be provided until August 4, 2018 and can be sent to lbullock@nyiso.com and Bhurysz@nyiso.com. To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/mc_bpwg/meeting_materials/2018-07-25/2019%20Project%20Prioritization%20Process%20Revised.pdf

Consumer Impact Analysis: 2019 Project List

Tariq Niazi of the NYISO presented the initial list of 2019 projects that will be subject to Consumer Impact Analysis. Mr. Niazi led a review of the guidelines for selecting projects for analysis prior to introducing the projects for 2019:

- **Constraint Specific Transmission Shortage Pricing**
- **Enhanced Fast Start Pricing**
- **More Granular Operating Reserves**
- **External Capacity Performance and Obligations**
- **Enhancing Fuel and Energy Security**

Mr. Niazi provided descriptions of each project with the anticipated benefit to the market and gave the criteria for selection for analysis. Stakeholders provided suggestions on potential methodology for analysis and other projects for additional consideration.

The NYISO will consider feedback received and return to the BPWG with a finalized list of projects. A presentation will also be made to the BIC or MC meeting to provide the information to a larger audience. To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/mc_bpwg/meeting_materials/2018-07-25/CIA%202019%20Project%20Listpdf.pdf

Thursday, July 26, 2018

Joint Market Issues/Installed Capacity/Price Responsive Load Working Group

NYISO Pilot Program Update

Brian Yung of the NYISO provided an update on the Distributed Energy Resources (DER) Pilot Program. The purpose of the program is to demonstrate DCEA/DER capabilities, integration, coordination, and dual participation in a test environment. The deadline to submit proposals was January 31, 2018.

Three proposals have been selected by the NYISO for the Final Review Process and include aggregations comprised of the following:

- *High-rise buildings capable of curtailing load*
- *In-front-of-the-meter battery energy storage facilities co-located with solar*
- *In-front-of-the-meter battery energy storage facilities*

Mr. Yung detailed the proposed projects, with a total of 5.5MW, including the anticipated objectives that the projects will demonstrate. A timeline was provided with the anticipation of the first pilot beginning its demonstration in January 2019. The NYISO is currently in the Final Review Process which includes evaluating the facility interconnection and other details, discussion of program expectations and formalizing the pilot plan. The NYISO will announce at later MIWGs when a pilot is formally accepted into the program and has executed NYISO's Pilot Participation Agreement.

To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-26/NYISO%20Pilot%20Program%20MIWG%20072618.pdf

Capacity Market Rules for Distributed Energy Resources`

Zachary T. Smith of the NYISO provided stakeholders with an opportunity to discuss the development of Distributed Energy Resources (DERs) capacity market participation model rules. Mr. Smith led a review of current capacity market eligibility rules, capacity amount calculations, and obligations of capacity suppliers. DERs could have the ability to contribute to NYISO capacity requirements but may not meet current eligibility rules. The NYISO is seeking input from stakeholders to facilitate the

participation of DERs into the wholesale capacity market. Some additional issues that will require consideration in the development of the DER market design for capacity include:

- Aggregations
  - Rules to allow aggregations of other types of capacity resources could also be developed
- Duration Requirements and Partial Capacity
  - Evaluate and change, if necessary, the duration requirement of limited resources from the current 4 hour requirement
  - Consideration of resources that cannot meet the duration requirement for payment
- Dual Participation
  - As part of the DER effort, the NYISO is evaluating what types of Dual Participation models are permissible

Mr. Smith noted stakeholder feedback and encouraged additional comments that can be sent to ztsmith@nyiso.com and/or deckels@nyiso.com. To see the complete presentation, please go to: http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-26/DER%20Capacity%20Rules%20Revised.pdf

DER Market Design Updates & Energy Market Bid to Bill Examples

Michael Lavillotti of the NYISO provided updates to the Distributed Energy Resources (DER) participation model and led a review of the DER energy market proposal materials to date. Mr. Lavillotti lead a review of the market entry process including:

- Registration
- Interconnection
- Metering Configurations
- Performance Measurement
- Application of FERC Order 745
- Bidding and Settlements

In each process area, Mr. Lavillotti spoke to updates made since the original subject presentations. Detailed numerical examples of bidding and the accompanying settlement rules were provided to clarify several aspects of the process.

The NYISO will continue to develop and refine rules for energy and capacity market offer requirements, mitigation, forecasting and interconnection. The NYISO will evaluate the implementation of rules through the pilot program. NYISO plans to conclude development of rules in 2018 for the eventual implementation of DER in 2021.

To see the complete presentation, please go to: http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_icapwg/meeting_materials/2018-07-26/DER%20Market%20Design%20-%20Updates%20and%20Energy%20Market%20Bid%20to%20Bill_V9.pdf

Friday, July 27, 2018

Joint Electric System Planning Working Group/Transmission Planning Advisory Subcommittee

Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets

Yachi Lin of the NYISO presented the results of the Public Policy Transmission Needs Study of transmission constrained renewable generation pockets. On August 1, 2018, the NYISO will initiate its Public Policy Transmission Planning Process for the 2018-2019 transmission planning cycle by issuing a solicitation to Market Participants and all interested parties over a 60-day period to submit to the

NYISO their proposals on Public Policy Requirements that may drive to Public Policy Transmission Needs.
NYISO conducted a transmission constraint assessment, at the request of the Department of Public Service, related to the significant injection of renewable generation resources into various locations in the New York Control Area ("NYCA") to satisfy the 50-by-30 goal of the State's Clean Energy Standard ("CES"). Ms. Lin described the scope of the study and noted that this study was not undertaken with the depth of an interconnection study.
The assumptions and methodology of the study were explained in detail, such as the transmission upgrades and generation dispatch options. For the purpose of this study, resources were added to satisfy the CES at the direction of DPS. The MW amount of each resource type, such as grid-connected solar and wind, zonal allocations and interconnection points were provided in the presentation.
Two load conditions were developed to represent possible system conditions and load-generation balance; summer peak load and summer light load conditions. Renewable generation was analyzed at full output. The study identified potential thermal violations, and four groups of overloads ("pockets") were found from study scenarios, as well as the curtailment of renewable generation necessary to relieve these constraints. A chart was provided to illustrate the potential un-bottling of curtailed renewable generation.
Under the studied "snapshot" system conditions, a substantial amount of additional renewable generation in these zones may need to be curtailed to prevent overloading transmission facilities. The study indicates a need for transmission upgrades in order to transmit the full power from the renewable generation pockets to NYCA load to achieve the CES.
To see the complete presentation, please go to:
http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2018-07-27/PPTN_genpockets_ESPWG_20180727.pdf

FERC Filings

July 27, 2018

Niagara Mohawk Power Corporation filing of a notice of cancellation of a superseded interconnection agreement with the Village of Ilion, NY

FERC Orders

July 25, 2018

FERC order granted NYISO's request for waiver of certain OATT sections that make available for sale, in NYISO-administered Transmission Congestion Contract (TCC) Auctions, all transmission capacity that is not needed to serve existing and valid TCCs

Filings and Orders:

http://www.nyiso.com/public/markets_operations/documents/tariffviewer/index.jsp